

Description

The present invention generally relates to a pair of interlockable sliders for slide fasteners which sliders are mounted reversely on a common slide fastener in such a manner to reciprocate independently of each other for opening and closing the slide fastener and which sliders can be locked together against movement away from each other in their fully closed position on the slide fastener (hereinafter referred to as "double lockable sliders" for brevity). Such double lockable sliders find application on travelling bags, carrying cases and like articles. The present invention particularly relates to double lockable sliders for slide fasteners comprising a pair of first and second sliders reciprocally mounted on the slide fastener and disposed reversely to each other, each of said sliders including a slider body having an attachment lug on its upper surface and a pull tab adapted for manipulating the slider, the pull tab including a proximal portion having a pivotal portion connected with the attachment lug for both pivotal movement thereon and reciprocative movement therealong and a pull tab body extending integrally from the proximal portion, the first pull tab of a first slider further including a recess formed in one surface of the pull tab body close to proximal portion a box-like portion having therein a chamber communicating with the recess and a latch member having a prong at its one end and lateral gripping knobs, said latch member being housed within the chamber for being reciprocally movable longitudinally of the pull tab and normally urged so as to bring the prong into the recess; the second pull tab of a second slider further having at the distal end and on one surface thereof an engaging projection which, in turn, has an indentation in its side close to the distal end of the second pull tab; when one of said pull tabs is turned flat against the corresponding slider body and then the other pull tab is turned flat against the said one pull tab, the engaging projection of the second pull tab coming into the recess of the first pull tab and the prong of the latch member resiliently coming into locking engagement with the indentation of the engaging projection.

Double lockable sliders of this type are disclosed in JP-U-63-110211. In order to interlock these conventional double lockable sliders in their fully closed position the second pull tab is turned flat against the second slider body and then the first pull tab of the first slider is turned flat against the second pull tab overlying the second slider body, and then locked to said second pull tab by means of the locking mechanism.

GB-A-894 401 discloses double lockable sliders in which the pull tab comprises the engag-

ing portion is turned flat against the other pull tab comprising the recess.

These conventional double interlockable sliders are advantageous, indeed, in being very easy to lock. Nevertheless, there still remain various drawbacks. In order to open the slide fastener from its locked disposition, the user must unlock the locking mechanism of said slider first, then turn the pull tab of said slider backward, and thereafter, reciprocate the slider along the slide fastener. It is, therefore, very difficult is not impossible to manipulate the slider for opening the slide fastener through one action by his one hand.

With the foregoing drawback in view, it is an object of the present invention to provide double lockable sliders for slide fasteners wherein unlocking operation of the sliders to open the slide fastener can be effected simply through one action by only one hand.

Double lockable sliders of the type mentioned above satisfying this requirement according to the invention are characterized in that the first pull tab is turned flat against the first slider body and then the second pull tab is turned flat against the first pull tab, and that the edge of the recess which is close to the proximal portion of the first pull tab is bevelled and/or that side of the engaging projection which is close to the proximal portion of the second pull tab is chamfered, the bevelled edge of the recess and/or the chamfered side of the projection constituting cam means for imparting to the engaging projection upward motion when the latch member is further pulled away from the second slider longitudinally of the slide fastener after the prong of the latch member has been retracted out of the locking engagement with the indentation of the engaging projection.

The above and other objects, features and advantages of the present invention will become apparent to those skilled in the art from the following detailed description made with reference to the accompanying drawings in which preferred embodiments incorporating the principles of the present invention are shown by way of example only.

FIG. 1 is an enlarged side view, partly in cross-section, of double lockable sliders according to the present invention, showing them in provisionally locked disposition;

FIG. 2 is an enlarged plan view, partly in cross-section, of one or a first slider of the double lockable sliders of FIG. 1;

FIG. 3 is an enlarged side view, partly in cross-section, of the slider of FIG. 2;

FIG. 4 is an enlarged side view, partly in cross-section and partly omitted, of the double lockable sliders of FIG. 1 but showing them in fully locked disposition;

FIG. 5 is a view similar to FIG. 4, but showing the double lockable sliders in unlocked disposition;

FIG. 6 is a fragmentary perspective view of a slide fastener on which the double lockable sliders according to the present invention are mounted, standing in unlocked disposition;

FIG. 7 is a view similar to FIG. 6 but showing the double lockable sliders in locked disposition;

FIG. 8 is an enlarged cross-sectional view of part of the pull tabs of double lockable sliders according to another embodiment; and

FIG. 9 is a view similar to FIG. 8 but showing still another embodiment.

FIGS. 1 through 7, inclusive, show one preferred embodiment of the present invention. As better shown in FIGS. 6 and 7, a pair of first and second sliders 2, 3 are mounted on a common slide fastener 1 and disposed reversely to each other, with their respective front ends 6, 7 facing each other. The sliders 2, 3 are reciprocally movable independently of each other on and along the slide fastener 1 to open and close the slide fastener 1.

As shown in FIGS. 1 and 5, each of the sliders 2, 3 broadly comprises a slider body 2', 3' and a pull tab 12, 13 pivotally mounted on the slider body 2', 3' for manipulation of the sliders 2, 3. The slider bodies 2', 3' of the double lockable sliders 2, 3 are identical in construction with each other and may be of commonplace construction which is already well-known in the art. Each of the slider bodies 2', 3' comprises a pair upper and lower wings 4a, 5a; 4b, 5b joined at its front end 6, 7 with each other. A U-shaped attachment lug 8, 9 is mounted at its proximal end 10, 11 at the front end 6, 7 of and on the upper surface of the upper wing 4a, 5a and extends rearwardly longitudinally of the slider body 2', 3' to thus define an elongated space with the upper surface of the upper wing 4b, 5b. Each of the pull tabs 12, 13 broadly comprises a proximal portion 14, 15 having a pivotal portion 16, 17 pivotally connected with the attachment lug 8, 9 and a pull tab body 12', 13' extending integrally therefrom. In addition to being pivotally movable to the attachment lug 8, 9 as indicated by double-headed arrow X in FIG. 1, the pull tabs 12, 13 are reciprocally movable within the elongated space along the attachment lug 8, 9. As better shown in FIG. 3, the pull tab body 12' of the first pull tab 12 is thicker than the proximal portion 14 in such a manner to have additional thicknesses on both sides of the plane of the proximal portion 14. The pull tab body 12' includes a recess 19 disposed close to the proximal portion 14, a box-like portion 60 disposed contiguous to the recess 19, and a cover plate 40 attached to the upper side of the box-like portion 60. The box-like portion 60 has

therein a chamber 30 which is open upwardly and communicates with the recess 19. As shown in FIG. 2, the box-like portion 60 also has in its opposed sides a pair of slots 28, 29 which are also communicated with by the chamber 30. A T-shaped latch member 23 is disposed within the chamber 30 on its side close to the recess 19 or the left side (as viewed in FIG. 2) for movement longitudinally of the pull tab 12. The T-shaped latch member 23 comprises a stem portion 23a and a crossbar 23b extending normally and in both directions from the top end thereof. The stem portion 23a extends longitudinally of the pull tab 12 toward the recess 19 and terminates in a locking prong 20. The crossbar 23b has the opposed ends pass through the respective slots 28, 29 and is provided at the opposed ends with the respective knobs 24, 25 for facilitating the manipulation of the latch member 23. A pair of compression springs 21, 22 each act between the crossbar 25 and that inner wall of the chamber 30 which is remote from the recess 19 and jointly function to normally urge the T-shaped latch member 23 so as to cause its prong 20 protrude into the recess 19. Gripping the knobs 24, 25 and pulling them in the direction indicated by an arrow Y against the bias of the compression springs 21, 22 causes the prong 20 retract from the recess 19, as seen in FIG. 3. The crossbar 23b is formed in the side opposite to the stem portion 23a with a concave abutting surface 34 for abutting engagement with a rotary body 31 to effect full locking of the double lockable sliders 2, 3, as described closely hereinbelow.

Within the chamber 30 and on that side of the latch member 23 which is remote from the recess 19 a rotary body 31 is rotatably mounted. The rotary body 31 comprises an upper circular disk 32 and a lower ellipsoidal body 33 extending integrally downwardly therefrom and positioned in confronting relation to the abutting surface 34 of the T-shaped latch member 23. The lower ellipsoidal body 33 is disposed eccentrically to the upper circular disk 32, thus providing a convex stopper surface 33' closely to and along the periphery of the upper circular disk 32. The rotary body 31 is rotatable between the first position in which the convex stopper surface 33' comes out of stopping engagement with the concave abutting surface 34 of the latch member 23, as shown in FIGS. 1 through 3, and the second position in which the convex stop surface 33' comes into stopping engagement with the concave abutting surface 34 of the latch member 23, as shown in FIG. 4. When the rotary body 31 is disposed in the first position, as shown in FIGS. 1 through 3; the convex stopper surface 33', as being out of stopping engagement with the concave abutting surface 34 of the latch member 23, allows the latch member 23 to move

In the direction indicated by an arrow Y in FIG. 2; on the other hand, when the rotary body 31 is disposed in the second position, as shown in FIG. 4; then the convex stopper surface 33', as being in latching engagement with the concave abutting surface 34 of the latch member 23, checks the movement of the latch member 23 in the direction of the arrow Y. The circular disk 32 is formed on its upper surface at its center with a key hole 35 for permitting the user to rotate the rotary body 31 by means of a separate key 36, as shown in FIG. 7, for selectively placing the rotary body 31 in the above-mentioned first and second positions.

The upper circular disk 32 is provided at its peripheral and diametrically opposite positions with a pair of notches 37, 38. A leaf spring 39 is disposed within the chamber 30 on that side of the rotary body 31 which is opposite to the latch member 23. The leaf spring 39 has its both ends connected to the inner wall of the chamber 30 and is bent arcuate at its middle to thus provide a protuberant retainer portion 39' projecting inwardly of the chamber 30. The leaf spring 39 has its protuberant retainer portion 39' normally urged into contact engagement with the periphery of the upper circular disk 33. The protuberant retainer 39' of the leaf spring 39 is engageable with the notches 37, 38 in order to retain the rotary body 31 selectively in the first position and the second position.

The cover plate 40 is attached to the upper side of the box-like portion 60 to cover the chamber 30. An outer key hole 41 is formed through the cover plate 40 and disposed in registry with the inner key hole 35 for insertion of the separate key 36 into the inner key hole 35 there-through.

The second pull tab 13 has at the distal end and on one surface thereof an engaging projection 42. The engaging projection 42 is arranged such that, when the second pull tab 13 of the second slider 3 is turned flat against the first pull tab 12 already turned flat against the slider body 2' of the first slider 2, the engaging projection 42 comes into fitting engagement with the recess 19 of the first pull tab 12. The engaging projection 42 has, in turn, an indentation 43 in its side which is close to the distal end of the pull tab 13. As the engaging projection 42 is fitted into the recess 19, so the engaging projection 42 displaces the prong 20 from the recess 19 into the chamber 30 against the bias of the springs 21, 22 until the indentation 43 faces the prong 20, at which moment the prong 20 is restored into locking engagement with the indentation 43 under the bias of the springs 21, 22, so that the first and second sliders 2, 3 have been locked to each other. In order to facilitate the displacement of the prong 20 by the engaging projection 42, the prong 20 has at its tip a bevelled

surface 44 as shown in FIGS. 3 and 5.

Since the pivotal portion 16 of the first pull tab 12 comes close to the proximal end 10 of the attachment lug 8 on the first slider 2, when the engaging projection 42 is locked by the prong 20 in the recess 20; there remains an ample space in which the pivotal portion 16 of the first slider 2 is movable along the attachment lug 8 in the direction indicated by an arrow Z in FIG. 1.

According to this embodiment, that edge 45 of the recess 19 which is close to the proximal portion 14 of the first pull tab 12 is bevelled and that side 46 of the projection 42 which is close to the proximal portion 15 of the second pull tab 13 is chamfered as well. The bevelled edge 45 of the recess 19 and the chamfered side 46 of the projection 42 jointly constitute cam means for imparting to the engaging projection 42 upward component of force or upward motion when the pull tab 12 is pulled in the direction indicated by an arrow Z in FIG. 1.

The second pull tab 13 has an aperture 51 formed in the pull tab body 13' for receiving the attachment lug 8 of the first slider 2 therein without interference when the second pull tab 13 is turned against the first pull tab 12. The pull tab body 12' of the first pull tab 12 is thicker than the proximal portion 14 in such a manner that the pull tab body 12' has additional thickness on both upper and lower sides of the plane of the proximal portions 14. The thickness of the pull tab body 13' of the pull tab 13 is such that the upper surface of the pull tab body 13' is held in coplanar relation to the upper surface of the cover plate 40, when the second pull tab 13 is turned flat against the first pull tab 12. These features are combined to advantageously render the interlocked double lockable sliders as a whole less in thickness and more attractive in appearance.

Although, in the first embodiment, the cam means is jointly constituted by both the bevelled edge 45 of the recess 19 and the chamfered side 46 of the projection 42; as far as being able to impart to the engaging projection 42 upward component of force or upward motion, the cam means may be constituted by only a chamfered side 47 of the projection 42, in which event an edge 48 of the recess 19 stands normal to the general plane of the first pull tab 12, as shown in FIG. 8. Alternatively, the cam means may be constituted by only a bevelled edge 49 of the recess 19, in which event an edge 50 of the projection 42 stands normal to the general plane of the second pull tab 13, as indicated in FIG. 9.

In locking operation, the pair of first and second sliders 2, 3 are first brought into abutting engagement with their respective front ends substantially contacted with each other to close the slide fastener 1. Then, the second pull tab 13 of

the second slider 3 is turned flat against the already - flatly - laid first pull tab 12 with the engaging projection 42 fitted into the recess 19. As the engaging projection 42 is fitted into the recess 19, the engaging projection 42 displaces the prong 20 from the recess 19 through the camming action of the bevelled surface 44 against the bias of the springs 21, 22 until the indentation 43 comes to face the prong 20, at which moment the prong 20 comes into locking engagement with the indentation 43 under the bias of the springs 21, 22 in snapping action, so that the engaging projection 42 is locked by the prong 20 in the recess 19. Now, the first and second sliders 2, 3 have been locked together. It is to be noted that, in the locked disposition of the sliders 2, 3, the pivotal portions 16, 17 of the first and second pull tab 12, 13 come close to the respective proximal ends 10, 11 of the attachment lugs 8, 9 on the first and second sliders 2, 3, which advantageously prevents the sliders 2, 3 from getting separated between their confronting front ends 6, 7, even under severe stresses tending to separate the slider bodies 2', 3' apart. As seen in FIG. 1, the length l from the pivotal portion 16 to the recess 19 of the first pull tab 12 is by far less than the length L from the pivotal portion 17 to the engaging projection 42 of the second pull tab 13, which means that the turning radius by which the first - mentioned length l of first pull tab 12 turns is by far less than that by which the last - mentioned length L of the second pull tab 13 turns. This advantageously helps to prevent the first and second pull tabs 2, 3 against accidental rotation on their respective pivotal portions 16, 17, thus maintaining the pull tabs 12, 13 in their stable postures.

So far, only provisional locking of the double lockable sliders 2, 3 has been accomplished as shown in FIGS. 1 and 3. For fully locking the sliders 2, 3, the separate key 36 is inserted through the outer key hole 41 into the inner key hole 35. Then, by means of the separate key 36, the rotary body 31 is rotated through the angle of 180 degrees from the first position indicated in FIGS. 1 and 3 into the second position indicated in FIG. 4, whereupon the convex stopper surface 33' of the lower ellipsoidal body 33 comes into stopping engagement with the concave abutting surface 34 of the latch member 23, thereby checking the movement of the latch member 23 in the direction of the arrow Y. Since the prong 20 will not retract out of the locking engagement with the indentation 43, the first and second sliders 2, 3 are fully locked to each other. In order to restore the thus - fully - locked sliders 2, 3 to the provisionally locked disposition, rotation of the rotary body 31 through further 180 degrees in either clockwise or anticlockwise direction is only a must.

For unlocking the first and second sliders 2, 3 from the provisionally locked disposition, knobs 24, 25 are gripped by fingers of a single hand and are pulled away from the second slider 3. Continued pull of the knobs 24, 25 causes the latch member 23 to retract, thereby bringing the prong 20 out of engagement with the indentation 43 of the engaging projection 42. As soon as the prong 20 comes out of engagement with the indentation 43 of the engaging projection 42, the bevelled edge 45 of the recess 19 and the chamfered side 46 of the projection 42 jointly function as cam means to impart upward component of force or upward movement to the engaging projection 42, so that the second pull tab 13 comes snappingly out of engagement with the first pull tab 12. Further continued pull on the knobs 24, 25 with the single hand would cause the first slider 2 to move apart from the second slider 3, thus opening the slide fastener 1. Thus, unlocking operation of the double lockable sliders 2, 3 to open the slide fastener 1 can be effected simply through one action by only one hand.

Obviously, various modifications and variations of the present invention are possible in the light of the above teaching. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

Claims

1. Double lockable sliders for slide fasteners comprising a pair of first and second sliders (2,3) reciprocally mounted on the slide fastener (1) and disposed reversely to each other, each of said sliders (2,3) including a slider body (2', 3') having an attachment lug (8,9) on its upper surface and a pull tab (12, 13) adapted for manipulating the slider (2,3), the pull tab (12, 13) including a proximal portion (14, 15) having a pivotal portion (16, 17) connected with the attachment lug (8, 9) for both pivotal movement thereon and reciprocative movement therealong and a pull tab body (12', 13') extending integrally from the proximal portion (14, 15), the first pull tab (12) of a first slider (2) further including a recess (19) formed in one surface of the pull tab body (12') close to proximal portion (14), a box - like portion (60) having therein a chamber (30) communicating with the recess (19), and a latch member (23) having a prong (20) at its one end and lateral gripping knobs (24, 25), said latch member (23) being housed within the chamber (30) for being reciprocally movable longitudinally of the pull tab (12) and normally urged so as to bring the prong (20) into the



the second slider 3 is turned flat against the already - flatly - laid first pull tab 12 with the engaging projection 42 fitted into the recess 19. As the engaging projection 42 is fitted into the recess 19, the engaging projection 42 displaces the prong 20 from the recess 19 through the camming action of the bevelled surface 44 against the bias of the springs 21, 22 until the indentation 43 comes to face the prong 20, at which moment the prong 20 comes into locking engagement with the indentation 43 under the bias of the springs 21, 22 in snapping action, so that the engaging projection 42 is locked by the prong 20 in the recess 19. Now, the first and second sliders 2, 3 have been locked together. It is to be noted that, in the locked disposition of the sliders 2, 3, the pivotal portions 16, 17 of the first and second pull tab 12, 13 come close to the respective proximal ends 10, 11 of the attachment lugs 8, 9 on the first and second sliders 2, 3, which advantageously prevents the sliders 2, 3 from getting separated between their confronting front ends 6, 7, even under severe stresses tending to separate the slider bodies 2', 3' apart. As seen in FIG. 1, the length I from the pivotal portion 16 to the recess 19 of the first pull tab 12 is by far less than the length L from the pivotal portion 17 to the engaging projection 42 of the second pull tab 13, which means that the turning radius by which the first-mentioned length I of first pull tab 12 turns is by far less than that by which the last-mentioned length L of the second pull tab 13 turns. This advantageously helps to prevent the first and second pull tabs 2, 3 against accidental rotation on their respective pivotal portions 16, 17, thus maintaining the pull tabs 12, 13 in their stable postures.

So far, only provisional locking of the double lockable sliders 2, 3 has been accomplished as shown in FIGS. 1 and 3. For fully locking the sliders 2, 3, the separate key 36 is inserted through the outer key hole 41 into the inner key hole 35. Then, by means of the separate key 36, the rotary body 31 is rotated through the angle of 180 degrees from the first position indicated in FIGS. 1 and 3 into the second position indicated in FIG. 4, whereupon the convex stopper surface 33' of the lower ellipsoidal body 33 comes into stopping engagement with the concave abutting surface 34 of the latch member 23, thereby checking the movement of the latch member 23 in the direction of the arrow Y. Since the prong 20 will not retract out of the locking engagement with the indentation 43, the first and second sliders 2, 3 are fully locked to each other. In order to restore the thus - fully - locked sliders 2, 3 to the provisionally locked disposition, rotation of the rotary body 31 through further 180 degrees in either clockwise or anticlockwise direction is only a must.

For unlocking the first and second sliders 2, 3 from the provisionally locked disposition, knobs 24, 25 are gripped by fingers of a single hand and are pulled away from the second slider 3. Continued pull of the knobs 24, 25 causes the latch member 23 retract, thereby bringing the prong 20 out of engagement with the indentation 43 of the engaging projection 42. As soon as the prong 20 comes out of engagement with the indentation 43 of the engaging projection 42, the bevelled edge 45 of the recess 19 and the chamfered side 46 of the projection 42 jointly functions as cam means to impart upward component of force or upward movement to the engaging projection 42, so that the second pull tab 13 comes snappingly out of engagement with the first pull tab 12. Further continued pull on the knobs 24, 25 with the single hand would cause the first slider 2 to move apart from the second slider 3, thus opening the slide fastener 1. Thus, unlocking operation of the double lockable sliders 2, 3 to open the slide fastener 1 can be effected simply through one action by only one hand.

Obviously, various modifications and variations of the present invention are possible in the light of the above teaching. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

Claims

1. Double lockable sliders for slide fasteners comprising a pair of first and second sliders (2,3) reciprocally mounted on the slide fastener (1) and disposed reversely to each other, each of said sliders (2,3) including a slider body (2', 3') having an attachment lug (8,9) on its upper surface and a pull tab (12, 13) adapted for manipulating the slider (2,3), the pull tab (12, 13) including a proximal portion (14, 15) having a pivotal portion (16, 17) connected with the attachment lug (8, 9) for both pivotal movement thereon and reciprocative movement therealong and a pull tab body (12', 13') extending integrally from the proximal portion (14, 15), the first pull tab (12) of a first slider (2) further including a recess (19) formed in one surface of the pull tab body (12') close to proximal portion (14), a box-like portion (60) having therein a chamber (30) communicating with the recess (19), and a latch member (23) having a prong (20) at its one end and lateral gripping knobs (24, 25), said latch member (23) being housed within the chamber (30) for being reciprocally movable longitudinally of the pull tab (12) and normally urged so as to bring the prong (20) into the



recess (19); the second pull tab (13) of a second slider (3) further having at the distal end and on one surface thereof an engaging projection (42) which, in turn, has an indentation (43) in its side close to the distal end of the second pull tab (13); when one of said pull tabs is turned flat against the corresponding slider body and then the other pull tab is turned flat against the said one pull tab, the engaging projection (42) of the second pull tab (13) coming into the recess (19) of the first pull tab (12) and the prong (20) of the latch member (23) resiliently coming into locking engagement with the indentation (43) of the engaging projection (42), characterized in that the first pull tab (12) is turned flat against the first slider body (2') and then the second pull tab (13) is turned flat against the first pull tab (12), and that the edge (45) of the recess (19) which is close to the proximal portion (14) of the first pull tab (12) is bevelled and/or that side (46) of the engaging projection (42) which is close to the proximal portion (15) of the second pull tab (13) is chamfered, the bevelled edge (45) of the recess (19) and/or the chamfered side of the projection (42) constituting cam means for imparting to the engaging projection (42) upward motion when the latch member (23) is further pulled away from the second slider (3) longitudinally of the slide fastener (1) after the prong (20) of the latch member (23) has been retracted out of the locking engagement with the indentation (43) of the engaging projection (42).

2. Double lockable sliders for slide fasteners recited in claim 1, the pivotal portions (16, 17) of the first and second pull tab (12, 13) coming close to the respective proximal ends (10, 11) of the attachment lugs (8, 9) of the first and second sliders (2, 3), when the prong (20) of the latch member (23) resiliently comes into locking engagement with the indentation (43) of the engaging projection (42).

3. Double lockable sliders for slide fasteners recited in claim 1, the latch member (23) being formed at the other end with an abutting surface (34), the first pull tab (12) further including a rotary body (31) rotatably mounted within the chamber (30) and on that side of the latch member (23) which is remote from the recess (19), the rotary body (31) comprising an upper circular disk (32) and a lower stopper body (33) extending integrally downwardly therefrom and positioned in confronting relation to the abutting surface (34) of the latch member (23), the lower stopper body (33) being dis-

posed eccentrically to the upper circular disk (32), thus presenting a stopper surface (33') closely to the periphery of the upper circular disk (32), the rotary body (31) being rotatable between the first position in which the stopper surface (33') comes out of stopping engagement with the abutting surface (34) of the latch member (23) and the second position in which the stopper surface (33') comes into stopping engagement with the abutting surface (34) of the latch member (23).

4. Double lockable sliders for slide fasteners recited in claim 2, a pair of notches (37, 38) being formed in its peripheral and diametrically opposite positions of the upper circular disk (32), the first pull tab (12) further including a leaf spring (39) provided within the chamber (30) on that side of the rotary body (31) which is opposite to the latch member (23), the leaf spring (39) having its both ends connected to the inner wall of the chamber 30 and being bent arcuate at its middle to thus provide a protuberant retainer portion (39'), the leaf spring (39) having its protuberant retainer portion (39') normally urged into contact engagement with the periphery of the upper circular disk (32), so that the protuberant retainer (39') of the leaf spring (39) is engageable with the notches (37, 38) in order to retain the rotary body (31) selectively in the first position and the second position.

5. Double lockable sliders for slide fasteners recited in claim 1, the second pull tab (13) further having an aperture (51) formed in the pull tab body (13') for receiving the attachment lug (8) of the first slider (2) therein without interference when the second pull tab (13) is turned flat against the first pull tab (12), the pull tab body (12') of the first pull tab (12) being thicker than the proximal portion (14) in such a manner to provide additional thickness on both upper and lower sides of the plane of the proximal portions (14), the thickness of the pull tab body (13') of the second pull tab (13) being such that the upper surface of the pull tab body (13') is held in coplanar relation to the upper surface of the pull tab body (12'), when the second pull tab (13) is turned flat against the first pull tab (12).

Patentansprüche

1. Verriegelbares Schieberpaar für Reißverschlüsse, umfassend ein Paar erste und zweite Schieber (2, 3), die auf dem Reißverschluss (1) hin- und herbewegbar gelagert und einander



zugekehrt angeordnet sind, wobei jeder der Schieber (2, 3) einen Schieberkörper (2') aufweist, der an seiner Oberseite einen Befestigungsbügel (8, 9) und einen zum Betätigen des Schiebers (2, 3) geeigneten Griff (12, 13) hat, wobei der Griff (12, 13) einen anliegenden Bereich (14, 15) mit einem Schwenkbereich (16, 17), der mit dem Befestigungsbügel (8, 9) sowohl zu einer Schwenkbewegung als auch zu einer hin- und hergehenden Bewegung verbunden ist, und einen Griffkörper (12', 13') aufweist, der sich einstückig von dem anliegenden Bereich (14, 15) erstreckt, wobei der erste Griff (12) eines ersten Schiebers (2) ferner eine in einer Oberfläche des Griffkörpers (12') nahe dem anliegenden Bereich ausgebildete Aussparung (19), einen gehäuseartigen Bereich (60), in dem eine mit der Aussparung (19) in Verbindung stehende Kammer (30) ausgebildet ist, und ein Riegelteil (23) umfaßt, daß eine Sperrklaue (20) an seinem einen Ende und seitliche Griffstücke (24, 25) aufweist, wobei das Riegelteil (23) in der Kammer (30) zu einer hin- und hergehenden Bewegung in Längsrichtung des Griffs (12) angeordnet und normalerweise vorgespannt ist, um die Sperrklaue (20) in der Aussparung (19) anzuordnen; wobei der zweite Griff (13) eines zweiten Schiebers (3) ferner an seinem abliegenden Ende und an einer Oberfläche desselben einen Eingriffsvorsprung (42) aufweist, der seinerseits an seiner dem abliegenden Ende des zweiten Griffs (13) benachbarten Seite eine Ausnehmung (43) aufweist; wobei der Eingriffsvorsprung (42) des zweiten Griffs (13) in die Aussparung (19) des ersten Griffs (12) eindringt und die Sperrklaue (20) des Riegelteils (23) mit der Ausnehmung (43) des Eingriffsvorsprungs (42) federnd in Sperreingriff gelangt, wenn einer der Griffe flach auf den entsprechenden Schieberkörper abgelegt und sodann der andere Griff flach auf diesen einen Griff abgelegt wird, dadurch gekennzeichnet, daß der erste Griff (12) flach auf den ersten Schieberkörper (2') abgelegt wird und sodann der zweite Griff (13) flach auf den ersten Griff (12) abgelegt wird und daß der dem anliegenden Bereich (14) des ersten Griffs (12) benachbarte Rand (45) der Aussparung (19) und/oder die dem anliegenden Bereich (15) des zweiten Griffs (13) benachbarte Seite (46) des Eingriffsvorsprungs (42) abgeschrägt ist, wobei der abgeschrägte Rand (45) der Aussparung (19) und/oder die abgeschrägte Seite des Vorsprungs (42) Steuerflächen bilden, die dem Eingriffsvorsprung (42) eine Aufwärtsbewegung erteilen, wenn das Riegelteil (23) in Längsrichtung des Reißver-

schlusses weiterhin von dem zweiten Schieber (3) weggezogen wird, nachdem die Sperrklaue (20) des Riegelteils (23) aus dem Sperreingriff mit der Ausnehmung (43) des Eingriffsvorsprungs (42) zurückgezogen wurde.

2. Verriegelbares Schieberpaar für Reißverschlüsse nach Anspruch 1, wobei die Schwenkbereiche (16, 17) des ersten und zweiten Griffs (12, 13) nahe an den zugeordneten anliegenden Enden (10, 11) der Befestigungsbügel (8, 9) des ersten und zweiten Schiebers (2, 3) zu liegen kommen, wenn die Sperrklaue (20) des Riegelteils (23) mit der Ausnehmung (43) des Eingriffsvorsprungs (42) federnd in Sperreingriff gelangt.
3. Verriegelbares Schieberpaar für Reißverschlüsse nach Anspruch 1, wobei das Riegelteil (23) am anderen Ende mit einer Anschlagfläche (34) versehen ist, wobei der erste Griff (12) ferner einen Drehkörper (31) umfaßt, der in der Kammer (30) und auf der von der Aussparung abliegenden Seite des Riegelteils (23) drehbar gelagert ist, wobei der Drehkörper (31) eine obere kreisrunde Scheibe (32) und einen sich von dieser einstückig nach unten erstreckenden Anschlagkörper (33) umfaßt, der der Anschlagfläche (34) des Riegelteils (23) gegenüberliegend angeordnet ist, wobei der untere Anschlagkörper (33) zu der oberen kreisrunden Scheibe (32) exzentrisch angeordnet ist und dadurch eine dem Umfang der oberen kreisrunden Scheibe (32) eng benachbarte Anschlagfläche (33') aufweist, wobei der Drehkörper (31) zwischen einer ersten Stellung, in der die Anschlagfläche (33') mit der Anschlagfläche (34) des Riegelteils (23) außer Eingriff steht, und einer zweiten Stellung verdrehbar ist, in der die Anschlagfläche (33') mit der Anschlagfläche (34) des Riegelteils (23) in Eingriff steht.
4. Verriegelbares Schieberpaar für Reißverschlüsse nach Anspruch 2, wobei zwei Kerben (37, 38) am Umfang der oberen kreisrunden Scheibe (32) an diametral gegenüberliegenden Stellen ausgebildet sind, wobei der erste Griff (12) ferner eine Blattfeder (39) aufweist, die in der Kammer (30) auf der dem Riegelteil (23) gegenüberliegenden Seite des Drehkörpers (31) angeordnet ist, wobei die beiden Enden der Blattfeder (39) mit der Innenwand der Kammer (30) verbunden sind und die Blattfeder in ihrer Mitte bogenförmig gekrümmt ist, um einen vorspringenden Haltebereich (39') zu bilden, wobei die Blattfeder (39) mit ihrem Haltebereich (39') normalerweise zum Eingriff



mit dem Umfang der oberen kreisrunden Scheibe (32) vorgespannt ist, so daß der vor-springende Haltebereich (39') der Blattfeder (39) mit den Kerben (37, 38) in Eingriff gelangen kann, um den Drehkörper (31) wahlweise in der ersten und zweiten Stellung zu halten.

5. Verriegelbares Schieberpaar für Reißverschlüsse nach Anspruch 1, wobei der zweite Griff (13) ferner eine Öffnung (51) aufweist, die im Griffkörper (13') ausgebildet ist, um den Befestigungsbügel (8) des ersten Schiebers (2) ohne Verklebung aufzunehmen, wenn der zweite Griff (13) auf den ersten Griff (12) abgelegt wird, wobei der Griffkörper (12') des ersten Griffs (12) in einer solchen Weise dicker ist als der anliegende Bereich (14), um sowohl an der Ober- als auch an der Unterseite der Ebene des anliegenden Bereichs eine zusätzliche Dicke zu schaffen, wobei der Griffkörper (13') des zweiten Griffs (13) eine solche Dicke hat, daß die Oberseite des Griffkörpers (13') mit der Oberseite des Griffkörpers (12') flächenbündig ist, wenn der zweite Griff (13) auf den ersten Griff (12) abgelegt ist.

Revendications

1. Courseur double verrouillable pour fermetures à glissière comprenant une paire de premier et second curseurs (2, 3) montés en vue d'un mouvement de va-et-vient sur la fermeture à glissière (1) et disposés de façon inverse l'un par rapport à l'autre, chacun des curseurs (2, 3) comprenant un corps (2', 3') de curseur comportant une oreille de fixation (8, 9) sur sa surface supérieure et une tirette (12, 13) adaptée pour manipuler le curseur (2, 3), la tirette (12, 13) comprenant une partie proximale (14, 15) comportant une partie pivotante (16, 17) accouplée à l'oreille de fixation (8, 9) en vue d'un mouvement de pivotement sur cette dernière et d'un mouvement de va-et-vient le long de cette oreille et un corps (12', 13') de tirette s'étendant d'une seule pièce depuis la partie proximale (14, 15), la première tirette (12) du premier curseur (2) comprenant, en outre, un évidement (19) formé sur une des surfaces du corps (12') de tirette au voisinage de la partie proximale (14), une partie (60) analogue à une boîte comportant intérieurement une chambre (30) communiquant avec l'évidement (19), et un élément de verrouillage (23) comportant une dent (20) à une de ses extrémités et des boutons de préhension latéraux (24, 25), ledit élément de verrouillage (23) étant logé à l'intérieur de la chambre (30) en vue d'un déplacement en va-et-vient dans le

sens longitudinal de la tirette (12) et poussé normalement de manière à introduire la dent (20) dans l'évidement (19); la seconde tirette (13) du second curseur (3) comportant, en outre, dans son extrémité distale et sur une de ses surfaces une saillie d'accrochage (42) qui, à son tour, comporte une entaille (43) dans son côté proche de l'extrémité distale et la seconde tirette (13); lorsque l'une desdites tirettes a été amenée par pivotement à plat contre le corps de curseur correspondant et qu'ensuite l'autre tirette a été amenée par pivotement à plat contre cette tirette, la saillie d'accrochage (42) de la seconde tirette (13) pénètre dans l'évidement (19) de la première tirette (12) et la dent (20) de l'élément de verrouillage (23) vient en prise de verrouillage de façon élastique avec l'entaille (43) de la saillie d'accrochage (42), caractérisé par le fait que la première tirette (12) est amenée par pivotement à plat contre le corps (2') du premier curseur et la seconde tirette (13) est amenée ensuite par pivotement à plat contre la première tirette (12), et que le bord (45) de l'évidement (19), qui est proche de la partie proximale (14) de la première tirette (12), est biseauté et/ou que le côté (46) de la saillie d'accrochage (42), qui est proche de la partie proximale (15) de la seconde tirette (13), est chanfreiné, le bord biseauté (45) de l'évidement (19) et/ou le côté chanfreiné de la saillie (42) constituant un moyen faisant office de came pour communiquer à la saillie d'accrochage (42) un mouvement ascendant lorsque l'on exerce sur l'élément de verrouillage (23) une traction supplémentaire qui l'éloigne du second curseur (3) dans le sens longitudinal de la fermeture à glissière (1) après que la dent (20) de l'élément de verrouillage (23) a été rappelée hors de son engagement de verrouillage dans l'entaille (43) de la saillie d'accrochage (42).

2. Courseur double verrouillable pour fermetures à glissière selon la revendication 1, la partie pivotante (16, 17) des première et seconde tirettes (12, 13) venant au voisinage des extrémités proximales respectives (10, 11) des oreilles de fixation (8, 9) des premier et second curseurs (2, 3) lorsque la dent (20) de l'élément de verrouillage (23) vient élastiquement en prise de verrouillage avec l'entaille (43) de la saillie d'accrochage (42).

3. Courseur double verrouillable pour fermetures à glissière selon la revendication 1, l'élément de verrouillage (23) comportant à son autre extrémité une surface formant butée (34), la



première tirette (12) comprenant en outre un corps rotatif (31) monté de façon tournante à l'intérieur de la chambre (30) et sur le côté de l'élément de verrouillage (23) qui se trouve à l'opposé de l'évidement (19), le corps rotatif (31) comprenant un disque circulaire supérieur (32) et un corps d'arrêt inférieur (33) s'étendant vers le bas depuis ce disque dont il fait partie intégrante et positionné en regard de la surface de butée (34) de l'élément de verrouillage (23), le corps d'arrêt inférieur (33) étant disposé de façon excentrée par rapport au disque circulaire supérieur (32) en présentant ainsi une surface d'arrêt (33') voisine de la périphérie du disque circulaire supérieur (32), le corps rotatif (31) pouvant tourner entre la première position dans laquelle la surface d'arrêt (33') cesse d'être en contact d'arrêt avec la surface de butée (34) de l'élément de verrouillage (23) et la seconde position dans laquelle la surface d'arrêt (33') vient en contact d'arrêt avec la surface de butée (34) de l'élément de verrouillage (23).

4. Curseur double verrouillable pour fermetures à glissière selon la revendication 2, une paire d'encoches (37, 38) étant formées dans la périphérie du disque circulaire supérieur (32) à des positions diamétralement opposées, la première tirette (12) comprenant en outre une lame de ressort (39) disposée à l'intérieur de la chambre (30) sur le côté du corps rotatif (31) qui se trouve en face de l'élément de verrouillage (23), la lame de ressort (39) étant fixée à ses deux extrémités à la paroi intérieure de la chambre (30) et étant arquée dans sa partie médiane de manière à comporter ainsi une partie de retenue protubérante (39'), la lame de ressort (39) ayant sa partie de retenue protubérante (39') poussée normalement contre la périphérie du disque circulaire supérieur (32) de manière que la partie de retenue protubérante (39') de la lame de ressort (39) puisse venir en prise avec les encoches (37, 38) pour retenir le corps rotatif (31) sélectivement dans la première position et dans la seconde position.

5. Curseur double verrouillable pour fermetures à glissière selon la revendication 1, la seconde tirette (13) comportant en outre une ouverture (51) formée dans le corps (13') de tirette pour recevoir l'oreille de fixation (8) du premier curseur (2) sans interférence lorsque la seconde tirette (13) est amenée par pivotement à plat contre la première tirette (12), le corps (12') de la première tirette (12) étant plus épais que la partie proximale (14) de manière à

procurer une épaisseur supplémentaire à la fois sur le côté supérieur et sur le côté inférieur du plan des parties proximales (14), l'épaisseur du corps (13') de la seconde tirette (13) étant telle que la surface supérieure du corps (13') de tirette est maintenue dans le même plan que la surface supérieure du corps (12') de tirette lorsque la seconde tirette (13) est amenée par pivotement à plat contre la première tirette (12).